

Amendments to the Claims:

Please add claims 91-103. This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-8. (Canceled)

9. (Withdrawn) A graphical user interface for rendering first measurement data and second measurement data on a display, the first and second measurement data each comprising measurement data points that each include first and second coordinate values representing a position in a plane, each of the data points of the first measurement data further including a measurement value representing a measurement of a first predefined measurement parameter, each of the data points of the second measurement data further including a measurement value representing a measurement of a second predefined measurement parameter, the graphical user interface comprising:

a surface image generator to generate first image data from the first measurement data and second image data from the second measurement data, the first image data representing a 3-D first surface image of a first surface that extends along the plane and is contoured based on the measurement values of the data points of the first measurement data, the second image data representing a 3-D second surface image of a second surface that extends along the plane and is contoured based on the measurement values of the data points of the second measurement data; and

an overlay image generator to generate overlay image data by overlaying the first and second image data, the overlay image data representing a 3-D overlay image of one of the first and second surfaces overlaid on the other one of the first and second surfaces, the overlay image being displayed by the display in response to the overlay image data.

10-17. (Canceled)

18. (Withdrawn) A graphical user interface for rendering first measurement data and second measurement data on a display, the first and second measurement data each comprising measurement data points that each include first and second coordinate values representing a position in a plane, each of the data points of the first measurement data further including a measurement value representing a measurement of a first predefined measurement parameter, each of the data points of the second measurement data further including a measurement value representing a measurement of a second predefined measurement parameter, the graphical user interface comprising:

a surface image generator to generate base image data from the first measurement data, the base image data representing a 3-D surface image of a surface that extends along the plane and is contoured based on the measurement values of the data points of the first measurement data,

an augmentation data generator to generate augmentation data from the second measurement data, the augmentation data providing an augmentation of the surface based on the measurement values of the data points of the second measurement data;

an augmented image generator to generate augmented image data by augmenting the base image data with the augmentation data, the augmented image data representing a 3-D augmented image of the surface augmented by the augmentation.

19-43. (Canceled)

44. (Withdrawn) An SPM probe that comprises:

an SPM tool that has a cantilever and a tip on the cantilever; and

a base that has an upper and lower surface and surrounds the SPM tool;

the cantilever of the SPM tool being connected to the base so that the SPM tool is located between the upper and lower surface when the cantilever is not bending, the cantilever of the SPM tool being capable of being selectively bent back and forth by a tip activation apparatus so as to selectively position the tip of the SPM tool below and above the lower surface of the base whereby the tip of the SPM tool may be selectively activated and deactivated for making

SPM measurements or SPM modifications to an object and protected from being damaged when deactivated.

45. (Withdrawn) An SPM probe as recited in claim 44 that further comprises the tip activation apparatus.

46. (Withdrawn) An SPM probe as recited in claim 45 wherein:
the cantilever is conductive;
the tip activation apparatus comprises electrodes fixed to the base above and below the cantilever;

whereby the cantilever is selectively bent back and forth by applying selected voltages to the electrodes and the cantilever.

47. (Withdrawn) An SPM probe as recited in claim 44 further comprising:
an additional SPM tool having a cantilever and a tip on the cantilever; and
the cantilever of the additional SPM tool being connected to the base so that the additional SPM tool is located between the upper and lower surface when the cantilever is not bending, the cantilever of the additional SPM tool being capable of being selectively bent down and up by a tip activation apparatus so as to selectively position the tip of the additional SPM tool below and above the lower surface of the base whereby the tip of the additional SPM tool may be selectively activated and deactivated for making SPM measurements of or SPM modifications to an object and protected from being damaged when deactivated.

48-53. (Canceled)

54. (Withdrawn) A microstructured force balance that comprises:
a base;
a contact platform;
a suspension system connected to the base and the contact platform to displaceably suspend the contact platform over the base, the contact platform being displaced by

varying amounts of displacement when varying amounts of force are applied to the contact platform by contacting the contact platform; and

a displacement actuator to selectively apply varying amounts of force to the contact platform to selectively cause varying amounts of displacement of the contact platform with respect to the base.

55. (Withdrawn) A microstructured force balance as recited in claim 53 wherein the suspension system comprises spring arms connected to the contact platform and the base.

56. (Withdrawn) A microstructured force balance as recited in claim 53 wherein:
the suspension system displaceably suspends the contact platform over the base for displacement in multiple dimensions;

the contact force has components in the multiple dimensions so that the displacement of the contact platform is in first directions in the multiple dimensions;

the microstructured force balance further comprises multiple ones of the displacement actuator to apply the force in second directions opposite to the first directions and along the multiple axis of direction so that the actuator caused displacement and opposite to selectively cause the varying amounts of displacement of the contact platform in the multiple directions.

57. (Withdrawn) A microstructured force balance as recited in claim 54 wherein:
the suspension system displaceably suspends the contact platform over the base in multiple directions;

the contact platform being displaced in the multiple directions by the varying amounts of displacement when the varying amounts of force are applied to the contact platform in the multiple directions by contacting the contact platform; and

the microstructured force balance further comprises multiple ones of the displacement actuator to selectively apply the varying amounts of force in the multiple directions

to selectively cause the varying amounts of displacement of the contact platform in the multiple directions.

58. (Withdrawn) A microstructured force balance as recited in claim 54 that further comprises one or more displacement sensors to sense the varying amounts of displacement of the contact platform.

59. (Withdrawn) A microstructured force balance as recited in claim 58 wherein: the suspension system displaceably suspends the contact platform over the base in multiple directions;

the contact platform being displaced by the varying amounts of displacement in the multiple directions when the varying amounts of force are applied to the contact platform in the multiple directions by contacting the contact platform;

the microstructured force balance further comprises multiple ones of the displacement actuator to selectively apply the varying amounts of force in the multiple directions to selectively cause the varying amounts of displacement of the contact platform in the multiple directions; and

the microstructured force balance further comprises multiple ones of the displacement sensor to sense the varying amounts of displacement of the contact platform in the multiple directions.

60. (Withdrawn) A microstructured force balance as recited in claim 58 that further comprises a control circuit located on the base, the control circuit being coupled to the displacement actuator to control the displacement actuator to selectively apply the varying amounts of force to the contact platform in response to displacement control signals, the control circuit being coupled to the displacement sensor to generate displacement measurement signals that provide a measure of the varying amounts of displacement of the contact platform sensed by the displacement sensor.

61. (Withdrawn) A microstructured force balance as recited in claim 54 wherein:

the contact platform comprises a displaceable electrode that is displaced when the contact platform is displaced; and

the displacement actuator comprises the displaceable electrode and a stationary electrode fixedly coupled to the base such that the varying amounts of force selectively applied to the contact platform by the displacement actuator are applied by selectively applying voltages across the stationary and displaceable electrodes.

62. (Withdrawn) A microstructured force balance as recited in claim 58 wherein:
the contact platform comprises a displaceable electrode that is displaced when the contact platform is displaced; and

the displacement sensor comprises the displaceable electrode and a stationary electrode fixedly coupled to the base such that the varying amounts of displacement of the contact platform are sensed by sensing voltage changes across the stationary and displaceable electrodes.

63. (Withdrawn) A microstructured force balance as recited in claim 54 wherein:
the contact platform comprises a displaceable comb structure that is displaced when the contact platform is displaced;

the displacement actuator comprises the displaceable comb structure and a stationary comb structure fixedly coupled to the base such that the varying amounts of force selectively applied to the contact platform by the displacement actuator are applied by selectively applying voltages across the stationary and displaceable comb structures.

64. (Withdrawn) A microstructured force balance as recited in claim 58 wherein:
the contact platform comprises a displaceable comb structure that is displaced when the contact platform is displaced; and

the displacement sensor comprises the displaceable comb structure and a stationary comb structure fixedly coupled to the base such that the varying amounts of displacement of the contact platform are sensed by sensing voltage changes across the stationary and displaceable comb structures.

65-88. (Canceled)

89. (Original) A probe for delivering a fluid material to an object, the probe comprising:

a tip with a capillary;

a microstructured pump having an inlet to receive the fluid material and an outlet in fluid communication with the capillary, the pump pumping the fluid material into the capillary so that the fluid material is ejected by the capillary and delivered to the object in response to a control signal received by the pump.

90. (Original) A probe as recited in claim 89 further comprising:

a base in which the pump is formed; and

a support platform connected to the base and on which the tip is located, the support structure having a duct that connects the capillary of the tip and the outlet of the pump.

91. (New) A mask repair tool comprising:

an SPM probe comprising a tip with a capillary;

a pump having an inlet to receive the fluid material and an outlet in fluid communication with the capillary, the pump pumping the fluid material into the capillary so that the fluid material is ejected by the capillary and delivered to the mask in response to a control signal received by the pump.

92. (New) A mask repair tool as recited in claim 91 further comprising:

a base in which the pump is formed; and

a support platform connected to the base and on which the tip is located, the support structure having a duct that connects the capillary of the tip and the outlet of the pump.

93. (New) A mask repair tool as recited in claim 91 further comprising a controller configured to:

receive modification data representing a required modification to be made to the mask's material; and

in response to the modification data, generating the control signal.

94. (New) A mask repair tool as recited in claim 91 wherein the fluid material is a liquid.

95. (New) A method of performing repairs on a mask, the method comprising: receiving modification data representing a required addition to be made to the mask's material; and

in response to the modification data, adding fluid material to the mask with an SPM probe.

96. (New) A method as recited in claim 95 further comprising generating the modification data by making SPM measurements of the mask.

97. (New) A method as recited in claim 96 wherein the SPM measurements are generated with the same SPM probe as the SPM probe used to add fluid material to the mask.

98. (New) A method as recited in claim 96 wherein the SPM measurements are generated with a different SPM probe than the SPM probe used to add fluid material to the mask.

99. (New) A method as recited in claim 95 wherein the fluid material is a liquid.

100. (New) A method as recited in claim 95 wherein the fluid material is introduced to the surface of the mask through an orifice in a tip of the SPM probe.

101. (New) A method as recited in claim 95 further comprising using the mask, so repaired, in a lithographic fabrication process.

102. (New) A method of performing repairs on a mask, the method comprising: receiving modification data representing a required modification to be made to the mask's material; and

in response to the modification data, directing an ion beam to the mask with an SPM probe configured as an ion beam tool.

103. (New) A method as recited in claim 102 further comprising generating the modification data by making SPM measurements of the mask.